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Patentanmeldung Nr. | Patent application No. | Demande de brevet n°

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Blatt 2 der Bescheinigung
Sheet 2 of the certificate
Page 2 de l'attestation

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Method for coding a presentation.

The invention relates to a method for coding a presentation, the coded presentation comprising at least one sub-presentation and the sub-presentation comprising at least one presentation element, in which method the coded presentation is provided with a timing specification specifying timing behaviour of the presentation element when presented.

The invention further relates to a method for playing out a coded presentation comprising at least one sub-presentation, the sub-presentation comprising at least one presentation element, in which method the presentation element is played out according to a timing specification of the coded presentation.

The invention further relates to a method for coding a presentation, the coded presentation comprising at least one sub-presentation and the sub-presentation comprising at least one presentation element, in which method the coded presentation is provided with a location specification specifying a location of the presentation element when presented.

The invention further relates to a method for playing out a coded presentation comprising at least one sub-presentation, the sub-presentation comprising at least one presentation element, in which method the presentation element is played out according to a location specification of the coded presentation.

The invention further relates to an apparatus for playing out a coded presentation according to one of the above methods.

The invention further relates to an apparatus comprising a converter module for amending a coded presentation, the coded presentation comprising at least one sub-presentation, the sub-presentation comprising at least one presentation element, and comprising at least one of

- a timing specification specifying timing behaviour of the presentation element when presented, and
- a location specification specifying a location of the presentation element when presented.

The invention further relates to an information carrier comprising a coded presentation, coded according to one of the above methods.

It is known to code a presentation into a specification according to a given format. The coded presentation may be transferred via a network or stored on a storage for subsequent play out by a suitable apparatus. An example of such a format is the ISO/IEC standard IS 13522-5, better known as MHEG. This standard is described in the document "ISO/IEC International Standard IS 13522-5 (MHEG) Information Technology - Coding of multimedia and hypermedia information, Part 5: Support for base-level interactive applications", November 1996. The presentation may include presentation elements comprising text, audio, video or an image. A presentation element can be regarded as an elementary item that is to be presented. A number of presentation elements of the presentation may have a certain relation with respect to each other and are put together into a so-called sub-presentation expressing that relation. An example is three pieces of text that are to be presented sequentially. The coded presentation may include a number of sub-presentations, each comprising its constituting presentation elements. A presentation element somewhere in the presentation may cause the start of another presentation element somewhere else in the presentation. This event-action mechanism provides the author of the presentation control over the timing of the various presentation elements. So during play out of a coded presentation, a certain presentation element may be triggered by a running presentation element and the timing behaviour of the certain presentation element is determined on the basis of the direct relation from the running presentation element to that certain presentation element. This causes the problem that the presentation must be executed as a whole and that it is very cumbersome to remove a presentation element or to substitute it by another one.

It is an object of the invention to provide a method for coding a presentation of the kind set forth in which the specification of the timing behaviour is improved. This object is achieved according to the invention in a method that is characterised in that the sub-presentation is provided with a timing interface providing a time reference and that the timing specification for the presentation element is specified relative to the time reference of the sub-presentation. By providing the sub-presentation with a timing interface and making the timing specification of its presentation elements relative to that timing interface, the sub-presentation has become a self contained entity as far the timing behaviour is concerned. The timing issues of the presentation elements

can be resolved internally, i.e. without a reference to other presentation elements outside the sub-presentation. This means that substituting or removing a presentation element is a relatively easy process because it is not necessary to check the whole of the presentation for broken relations and for timing inconsistencies. Furthermore, a sub-presentation may be substituted by another sub-presentation according to the invention, provided that the timing interface of the two sub-presentations is the same. Also, since the sub-presentation is a self contained entity, the sub-presentation may be played out on its own, separate from the rest of the presentation. This is useful when only a fragment of the presentation is needed or when a part of the presentation is to be verified.

An embodiment of the method according to the invention is defined in Claim 2. In particular when the sub-presentation comprises a number of presentation elements that must be presented sequentially, it is advantageous that the timing specification of the individual presentation elements is relative to the time reference of the sub-presentation. Then it is relatively easy to verify whether the timing specifications do not violate the requirement that the presentation elements are to be presented sequentially.

An embodiment of the method according to the invention is defined in Claim 3. The start of the presentation element is one of the aspects of the timing behaviour that can advantageously be specified relative to the time reference of the sub-presentation. Apart from the timing specification relative to the time reference, a presentation element may have a further timing specification that is specified relative to another presentation element within the same sub-presentation. An example is where the start of a presentation element is specified relative to the time reference of the sub-presentation and the end of that presentation element is specified relative to another presentation element in the sub-presentation.

It is a further object of the invention to provide a method for playing out a coded presentation of the kind set forth with an improved mechanism for determining the timing of a presentation element. This object is achieved according to the invention in a method that is characterised in that the sub-presentation comprises a timing interface providing a time reference and that the presentation element is played out according to the timing specification relative to the time reference. The timing interface of the sub-presentation provides a time reference for the presentation elements in the sub-presentation. This makes the sub-presentation self contained with respect to the

timing behaviour of the presentation elements and during play out all timing aspects can be resolved internally to the sub-presentation. There is no need to refer to presentation elements outside the currently played out sub-presentation and this greatly eases the process for playing out.

In a similar way as that the presentation elements according to the known method may directly refer to each other throughout the presentation for their relative timing behaviour, the known presentation elements may also refer to each other for specifying their relative positions. This causes in particular a problem for the specification of the layered organisation of the presentation elements on a display. To reconstruct which presentation element is to be displayed in front of which other presentation element, the whole presentation and all location specifying relations must be resolved.

It is a further object of the invention to provide a method for coding a presentation of the kind set forth in which the specification of the relative locations of presentation elements is improved. This object is achieved according to the invention in a method that is characterised in that the sub-presentation is provided with a location interface providing a location frame of reference and that the location specification for the presentation element specifies the location of the presentation element relative to the location frame of reference. By providing the sub-presentation with a location interface and making the location specification of its presentation elements relative to that location interface, the sub-presentation has become a self contained entity as far the locations of the presentation elements are concerned. The location issues of the presentation elements can be resolved internally, i.e. without a reference to other presentation elements outside the sub-presentation. This means that substituting or removing a presentation element is a relatively easy process because it is not necessary to check the whole of the presentation for broken relations and for inconsistencies in the specifications of the locations. Furthermore, a sub-presentation may be substituted by another sub-presentation according to the invention, provided that the location interface of the two sub-presentations is the same. Also, since the sub-presentation is a self contained entity, the sub-presentation may be played out on its own, separate from the rest of the presentation. This is useful when only a fragment of the presentation is needed or when a part of the presentation is to be verified.

It is a further object of the invention to provide a method for playing out

a coded presentation of the kind set forth with an improved mechanism for determining the location of a presentation element. This object is achieved according to the invention in a method that is characterised in that the sub-presentation comprises a location interface providing a location frame of reference and that the presentation element is played out according to the location specification relative to the location frame of reference. The location interface of the sub-presentation provides a frame of reference for the presentation elements in the sub-presentation. This makes the sub-presentation self contained with respect to the location of the presentation elements and during play out all aspects related to determining the location can be resolved internally to the sub-presentation. There is no need to refer to presentation elements outside the currently played out sub-presentation and this greatly eases the process for playing out.

It is a further object of the invention to provide an apparatus comprising a converter module of the kind set forth with an improved mechanism for substituting a sub-presentation. This object is achieved according to the invention in a method that is characterised in

that the sub-presentation comprises at least one of

- a timing interface providing a time reference, whereby the timing specification for the presentation element is specified relative to the time reference of the sub-presentation, and
- a location interface providing a location frame of reference, whereby the location specification for the presentation element specifies the location of the presentation element relative to the location frame of reference, and

that the converter module is arranged to substitute the sub-presentation with a predetermined sub-presentation comprising a corresponding interface. This apparatus allows easy substitution of a specific sub-presentation with a sub-presentation comprising a corresponding interface. This can advantageously be used for amending a coded presentation with text presentation elements in one language to a coded presentation with these text presentation elements in another language.

Further advantageous embodiments of the invention are recited in the dependent claims.

The invention and its attendant advantages will be further elucidated with the aid of exemplary embodiments and the accompanying schematic drawings, whereby:

Figure 1 schematically shows the environment in which the invention is executed,

Figure 2 schematically shows the organisation of presentation elements in a coded presentation according to the prior art,

Figure 3 schematically shows the organisation of presentation elements according to the invention,

Figure 4 shows an example of a presentation comprising an audio element and three textual elements,

Figure 5 shows an example of a presentation comprising two video element and four textual elements,

Figure 6 shows the example of Figure 5 with modified frames for the sub-presentations,

Figure 7 shows an example of a presentation with images on multiple layers, and

Figure 8 shows the most important components of the apparatus for play out a coded presentation according to the invention.

Corresponding features in the various Figures are denoted by the same reference symbols.

Figure 1 schematically shows the environment in which the invention is executed. An author 102 uses a preparation system 104 to prepare a presentation. The presentation may include text, images, audio and video composed together according to the specification of the author. The preparation system 104 generates a coded presentation 106 according to a certain format. The coded presentation 106 is also referred to as a multimedia document, since it may contain a number of different media types. The coded presentation 106 may be stored on an information carrier 108 for subsequent reproduction and distribution to users. The information carrier may be a CD-ROM, magnetic disk, tape or the like. A user 110 retrieves through a playback apparatus 112 a copy 114 of the presentation from a local copy 116 of the information carrier. If the playback apparatus is not suitable for playback of a presentation in the format used, then a converter may be provided that converts the local copy 114 of the presentation into a format that can be handled by the playback apparatus. Alternative to storing the coded presentation 106 onto an information carrier, the coded presentation

may be put on the storage device 118 of a server 120. A user 122 may later access the server via a network 124 to play out the presentation on a local station 126. An example of this latter alternative is the usage of HTML pages forming a presentation which is put on a server and later accessed by a user via the Internet network.

Figure 2 schematically shows the organisation of presentation elements in a coded presentation according to the prior art. A coded presentation 202 comprises a number of presentation elements, of which are shown presentation elements 204, 206, 208, 210, 212 and 214. A presentation element is an elementary part of the presentation, like a still image or a piece of text, which is presented at a given moment in the presentation. Presentation element 204 comprises an event 216 that triggers the play out of presentation element 208 and presentation element 206 comprises an event 218 that triggers the play out of presentation element 214. Presentation element 212 comprises an event 220 that also triggers the play out of presentation element 214. When a presentation element is running, i.e. being played out, then at a certain moment its event is executed which has as action the start of the playing out of another presentation element. The newly started presentation element may be presented in addition to the original one, e.g. the start of displaying an image when a certain point in an audio presentation has been reached, or it may substitute the original one, e.g. displaying a new image replacing a previously displayed image. Alternative descriptions for this event-action mechanism are synchronisation arc, sync arc and timing specification. According to the prior art, a presentation element may be triggered from anywhere in the presentation and may be triggered by different presentation elements.

Figure 3 schematically shows the organisation of presentation elements according to the invention. A coded presentation 302 comprises a sub-presentation 304 and a sub-presentation 306. The sub-presentation 304 comprises presentation elements 308, 310 and 312, and sub-presentation 306 comprises presentation elements 314, 316 and 317. Sub-presentation 304 comprises a timing interface 318 which provides a time reference for the whole of the sub-presentation 304. This time reference may provide a point in time from which the start and end times from presentation elements can be scheduled and may provide a clock for synchronising the pace of presenting the presentation elements for a specified duration. The timing specification for presentation elements 308, 310 and 312 is specified relative to the time reference of the timing interface 318. The timing interface 318 of sub-presentation 304 provides a translation

between the time reference valid for the enclosing presentation 302 and the elements of the sub-presentation 304. Sub-presentation 306 has its own timing interface 320 providing a time reference for that sub-presentation. The timing specification for a presentation element need not be directly relative to the timing interface. Presentation element 317 is specified relative to an event of presentation element 316 of the same sub-presentation. An example is that presentation element 317 is started when presentation element 316 ends. Furthermore, different aspects of the timing specification may be specified relative to different events. Presentation element 316 is for one aspect specified relative to the timing interface 320 of the sub-presentation and for another aspect relative to event 322 of presentation element 314. An example is that the start time of presentation element 316 is given relative to the timing interface 320 and the end time of presentation element 316 relative to the event 322 in presentation element 314. However, in both cases where the timing specification is not specified in direct relation to the timing interface, it is still given within the scope of sub-presentation 306. So all timing issues, like the start of a presentation element or the verification of the timing in a sub-presentation, can be resolved by only consulting the sub-presentation and its included presentation elements. There is no need to take into account other presentation elements in other sub-presentations. Because of this organisation of the timing specifications, a sub-presentation can be played out separately from the rest of the presentation. This may be useful for testing purposes when certain small changes to the presentation have been made and it would take excessively long to play out the whole presentation. Furthermore, this organisation allows a complete sub-presentation to be substituted by another one as long as the new one has an interface which is compatible with the original one.

Figure 4 shows an example of a presentation comprising an audio element and three textual elements. Presentation 400 comprises the simultaneous presentation of an presentation element 402 called audio1 and a series of three presentation elements 404, 406 and 406, called txt1, txt2 and txt3 respectively. The presentation of the series starts with the presentation of presentation element 404, followed by the presentation of presentation element 406 and concluded with the presentation of presentation element 408. In an embodiment of the invention, presentation 400 is coded as follows:

(1)

```
(2)    .
(3)    .
(4)    <par>
(5)        <audio id = "audio1">
(6)        <seq clock = "audio1">
(7)                <text id = "txt1" begin = "0">
(8)                <text id = "txt2" begin = "10s">
(9)                <text id = "txt3" begin = "20s">
(10)       </seq>
(11)   </par>
(12)   .
(13)   .
(14)   .
```

Lines 1-3 symbolise that various lines of the coded presentation have been omitted from the example and that only the part corresponding to Figure 4 has been given. Line 4 defines the beginning of a so-called parallel sub-presentation of sub-presentations and/or presentation elements which are to be presented in parallel, i.e. simultaneously. Line 11 defines the end that parallel sub-presentation. The parallel sub-presentation of this example contains two parts that are to be presented simultaneously. These are a presentation element defined at line 5 and a sequential sub-presentation defined at lines 6-10. A sequential sub-presentation comprises sub-presentations and/or presentation elements that are to be presented sequentially, i.e. one after the other. The sequential sub-presentation of this example comprises three presentation elements each comprising a text, called txt1, txt2 and txt3 respectively. The presentation element of the parallel sub-presentation comprises an audio piece called audio1, as defined on line 5. Now, in order to define when a particular presentation element of the sequential sub-presentation is to be presented, each such presentation element is given a start time. In the example the start time is 0, 10 and 20 seconds respectively. In the context of the sequential sub-presentation, the start of a textual presentation element implies the end of the preceding textual presentation element. According to the invention, the start times of the presentation elements are given relative to the time reference of the enclosing sub-presentation. In line 6, the timing interface of the sequential sub-presentation specifies

that the time reference corresponds to the time reference of the presentation element audio1. So this means that the presentation of txt1 starts at the same time as the presentation of audio1. The timing specifications of the presentation elements for txt1, txt2 and txt3 are specified with respect to the timing interface of the sequential sub-presentation and do not themselves refer directly to the presentation element audio1. This is an important aspect because this makes that the timing issues of the sequential sub-presentation defined at lines 6-10 can be resolved internally and that no reference outside the sub-presentation need to be verified.

An alternative of a coded presentation for the presentation 400 is the following:

```
(1)   .
(2)   .
(3)   .
(4)   <par>
(5)       <audio id = "audio1">
(6)       <seq clock = "audio1">
(7)               <text id = "txt1" dur = "10s">
(8)               <text id = "txt2" dur = "10s">
(9)               <text id = "txt3" dur = "10s">
(10)      </seq>
(11)  </par>
(12)  .
(13)  .
(14)  .
```

In this example, the duration of the period during which the textual presentation elements must be presented is specified. The first textual presentation element starts immediately after the start of the sequential sub-presentation, which is the same moment as the start of the audio presentation element, and continues for 10 seconds. Then the second textual presentation element is started, because they are in a sequential sub-presentation which indicates that the presentation elements must be presented sequentially. The duration of the textual presentation elements is given with respect to

the time reference of the timing interface defined at line 6. The results when playing out this alternative is the same as for the previous alternative where the start times of the textual attributes have been specified.

Figure 5 shows an example of a presentation comprising two video element and four textual elements. Presentation 500 comprises the simultaneous display of a video sub-presentation 502 and a textual sub-presentation 504. The video sub-presentation 502 comprises a sequence of video presentation element 504, called video1, and video presentation element 506, called video2. The textual sub-presentation 504 comprises a sequence of textual presentation element 508, called txt1, textual presentation element 510, called txt2, textual presentation element 512, called txt3, and textual presentation element 514, called txt4. The coded presentation corresponding to presentation 500 is:

```
(1)   .
(2)   .
(3)   .
(4)   <par>
(5)       <seq id = "seq1" export clock x_origin = "30" y_origin = "0">
(6)           <video id = "video1">
(7)           <video id = "video2">
(8)       </seq>
(9)       <seq id = "seq2" clock = "seq1" x_origin = "30" y_origin =
"80">
(10)          <text id = "txt1" dur = "10s">
(11)          <text id = "txt2" dur = "10s">
(12)          <text id = "txt3" dur = "10s">
(13)          <text id = "txt4" dur = "10s">
(14)      </seq>
(15)  </par>
(16)  .
(17)  .
(18)  .
```

The coded presentation comprises a parallel sub-presentation of a sequential video sub-presentation seq1, defined at lines 5-8, and a sequential textual sub-presentation seq2, defined at lines 9-14. The sub-presentation seq1 has a time reference according to which its presentation elements video1 and video2 are presented. This time reference is available inside sub-presentation seq1, but through the timing interface defined at line 9 becomes also available to the enclosing parallel sub-presentation. The timing interface of sub-presentation seq2, which is defined at line 9, declares that the time reference exported by seq1 is to be used inside seq2. So the duration of the textual presentation elements of lines 10-13 is synchronised with the presentation of the video presentation elements.

Figure 5 further shows a display area 516, comprising a frame 518 into which the video presentation elements are to be presented and a frame 520 into which the text presentation elements are to be presented. Those frames are defined in the location interface of the respective sub-presentation. For reasons of brevity, only the definition of the origins of the frames have been explicitly mentioned in the code presentation above: the origin of the frame 518 at line 5 and the origin of frame 520 at line 9. In this example, a sub-presentation has a timing interface providing a time reference for its presentation elements and a location interface providing a frame of reference for its presentation elements. Both types of interface make that the sub-presentation is a self contained entity that is isolated from the other parts of the coded presentation. As argued before, this eases the maintenance of a presentation, because substitution of sub-presentations can more easily be executed, and eases the play out of the presentation, also allowing a separate play out of a sub-presentation.

Figure 6 shows the example of Figure 5 with modified frames for the sub-presentations. The structure of the sub-presentations and their presentation elements are the same as in the previous example. Now, display area 602 comprises a frame 604 into which the video presentation elements are to be presented and a frame 606 into which the text presentation elements are to be presented. The coded presentation is as follows:

(1) .
(2) .
(3) .
(4) <par>

```
(5)     <seq id = "seq1" export clock x_origin = "0" y_origin = "0">
(6)         <video id = "video1">
(7)         <video id = "video2">
(8)     </seq>
(9)     <seq id = "seq2" clock = "seq1" x_origin = "0" y_origin =
"80">
(10)        <text id = "txt1" dur = "10s">
(11)        <text id = "txt2" dur = "10s">
(12)        <text id = "txt3" dur = "10s">
(13)        <text id = "txt4" dur = "10s">
(14)    </seq>
(15) </par>
(16) .
(17) .
(18) .
```

This coded presentation results in the same presentation as the previous one, but in somewhat larger frames. Such difference in frames could be used to prepare a presentation for a TV screen with a traditional aspect ratio of 4:3 and a presentation for a wide-screen TV with an aspect ratio of 16:9. The following coded presentation is in particular useful for that purpose:

```
(1)  .
(2)  .
(3)  .
(4)  <par x_origin = "0" y_origin = "0">
(5)      <seq id = "seq1" export clock>
(6)          <video id = "video1">
(7)          <video id = "video2">
(8)      </seq>
(9)      <seq id = "seq2" clock = "seq1" y_origin = "80">
(10)         <text id = "txt1" dur = "10s">
(11)         <text id = "txt2" dur = "10s">
```

```
(12)                <text id = "txt3" dur = "10s">
(13)                <text id = "txt4" dur = "10s">
(14)          </seq>
(15)    </par>
(16)    .
(17)    .
(18)    .
```

The x_origin defined at line 4 is valid for the whole parallel sub-presentation. This means that changing from wide-screen, as in the coded presentation above, to traditional screen requires only amending line 4 to:

```
(4)     <par x_origin = "30"  y_origin = "0">
```

Then the whole presentation starts at an offset of 30.

Figure 7 shows an example of a presentation with images on multiple layers. The presentation 700 comprises a background image bck, onto which all other image are displayed. Furthermore the image comprises a front image fr which is always on top of the other images. Such front image could be used for markers, frame lines, subtitles and the like. The presentation further comprises images im1, im2 and im3, with the following rules for visibility: im1 will be on top of im2 and im3, and im2 will be on top of im3. This organisation of images into various layers is achieved in the following coded presentation:

```
(1)     .
(2)     .
(3)     .
(4)     <par>
(5)         <img id = "fr" layer = "3">
(6)         <par layer = "2">
(7)                 <img id = "im1" layer = "5">
(8)                 <img id = "im2" layer = "3">
(9)                 <img id = "im3" layer = "1">
```

```
(10)        </par>
(11)        <img id = "bck" layer = "1">
(12)    </par>
(13)    .
(14)    .
(15)    .
```

In the coded presentation, the number of a layer determines which layer is on top of which other layer and consequently which layer is visible at the expense of another. A higher layer number is displayed in front of a lower layer number. The example comprises a parallel sub-presentation defined at lines 4-12, comprising image fr at layer 3, a parallel sub-presentation of images at layer 2 and image bck at layer 1. This mean that image fr is always on top of other images, that image bck is at the back of other images and that the group of images of the sub-presentation is between fr and bck. Now, the parallel sub-presentation of images is defined at lines 6-10 and comprise image im1 at layer 5, image im2 at layer 3 and image im1 at layer 1. It is to be noted that these layer numbers refer to the frame of reference of the sub-presentation, which frame is not available outside the sub-presentation. So the layer numbers indicate the relative position of layers within in the sub-presentation, which itself resides on the level of the presentation at layer 2. So, image im1 with a local layer number of 5 is not on top of image fr with a layer number of 3 simply because all images of the sub-presentation reside from the perspective of image fr on layer 2. The local layer number is not available at the level of the presentation and can not be compared with the layer number of image fr.

The examples given refer to a coded presentation with sub-presentations which have a timing and/or a location interface according to invention. Sub-presentations may be nested, i.e. a sub-presentation may include another sub-presentation, whereby the included sub-presentation also has a timing and/or interface. The concept of interface may also be extended to the coded presentation as a whole. The timing aspects and the location aspects of such a coded presentation are then fully described in the timing interface and the location interface respectively. This makes it possibly to substitute one coded presentation by another, provided that the interfaces are the same. Furthermore, it is then possible to treat the coded presentation as a sub-

presentation and to include on coded presentation in another coded presentation.

Figure 8 shows the most important components of the apparatus for play out a coded presentation according to the invention. The apparatus 800 is implemented according to a known architecture and can be realized on a general purpose computer. The apparatus has a processor 802 for carrying out instructions of an application program loaded into working memory 804. The apparatus further has an interface 806 for communication with peripheral devices. There is a bus 808 for exchange of commands and data between the various components of the apparatus. The peripherals of the apparatus include a storage medium 810 containing the executable programs, the coded presentation if this is distributed via local carrier, and various other data. The storage medium 810 can be realized as various separate devices, potentially of different kind of storage device. Application of the invention is not restricted by the type of device and storage devices which can be used include optical disc, magnetic disc, tape, chip card, solid state or some combination of these devices. Furthermore, the apparatus may be connected to a remote server by a network via connection 812. The peripherals of the apparatus further include a display 814, on which the system displays amongst others the visual presentation elements, and speakers 816 for presenting the audible presentation elements. Furthermore the peripherals may include a selection device 818 and a pointing device 820 with which the user can move a cursor on the display. Devices 818 and 820 can be integrated into one selecting means 822 like a computer mouse with one or more selection buttons. However, other devices like a track ball, graphic tablet, joystick, or touch sensitive display are also possible. In order to carry out the various tasks, the respective software modules are loaded into the working memory 804.

The apparatus may be provided with a converter module 824 that is capable of substituting one specific sub-presentation with a predetermined sub-presentation. Apart from being incorporated into the play back apparatus, the converter module may be implemented in a stand-alone apparatus which only function is to substitute the sub-presentation. The substitution may be executed off-line on the coded presentation stored on the storage medium. The result is either the modified coded presentation or a new copy of the presentation containing the amendment. The substitution may also be executed real-time, while the coded presentation is being played out. Then the converter apparatus receives the original coded presentation, either

from a storage medium or from a network, and outputs a coded presentation containing the amendment.

CLAIMS:

1. A method for coding a presentation, the coded presentation comprising at least one sub-presentation and the sub-presentation comprising at least one presentation element, in which method the coded presentation is provided with a timing specification specifying timing behaviour of the presentation element when presented, characterised in

that the sub-presentation is provided with a timing interface providing a time reference and

that the timing specification for the presentation element is specified relative to the time reference of the sub-presentation.

2. A method according to Claim 1, in which the sub-presentation comprises a sequence of presentation elements which are to be presented one after the other.

3. A method according to Claim 1 in which the timing specification specifies the start of the presentation element with respect to the time reference of the sub-presentation.

4. A method according to Claim 1 in which the timing specification specifies the duration of the presentation element with respect to the time reference of the sub-presentation.

5. A method for playing out a coded presentation comprising at least one sub-presentation, the sub-presentation comprising at least one presentation element, in which method the presentation element is played out according to a timing specification of the coded presentation, characterised in

that the sub-presentation comprises a timing interface providing a time reference and that the presentation element is played out according to the timing specification relative to the time reference.

6. A method for coding a presentation, the coded presentation comprising at least one sub-presentation and the sub-presentation comprising at least one presentation element, in which method the coded presentation is provided with a location specification specifying a location of the presentation element when presented,

characterised in

that the sub-presentation is provided with a location interface providing a location frame of reference and

that the location specification for the presentation element specifies the location of the presentation element relative to the location frame of reference.

7. A method according to Claim 6, in which the sub-presentation comprises a group of presentation elements which are to be presented simultaneously with respect to each other.

8. A method for playing out a coded presentation comprising at least one sub-presentation, the sub-presentation comprising at least one presentation element, in which method the presentation element is played out according to a location specification of the coded presentation, characterised in

that the sub-presentation comprises a location interface providing a location frame of reference and

that the presentation element is played out according to the location specification relative to the location frame of reference.

9. An apparatus for playing out a coded presentation, according to the method of Claim 5 or 8.

10. An apparatus comprising a converter module for amending a coded presentation, the coded presentation comprising at least one sub-presentation, the sub-presentation comprising at least one presentation element, and comprising at least one of

- a timing specification specifying timing behaviour of the presentation element when presented, and
- a location specification specifying a location of the presentation element when presented,

characterised in

that the sub-presentation comprises at least one of

- a timing interface providing a time reference, whereby the timing specification for the presentation element is specified relative to the time reference of the sub-presentation, and
- a location interface providing a location frame of reference, whereby the location specification for the presentation element specifies the location of the presentation element relative to the location frame of reference, and

that the converter module is arranged to substitute the sub-presentation with a predetermined sub-presentation comprising a corresponding interface.

11. An information carrier comprising a coded presentation, coded according to the method of any of the Claims 1 to 4, 6 and 7.

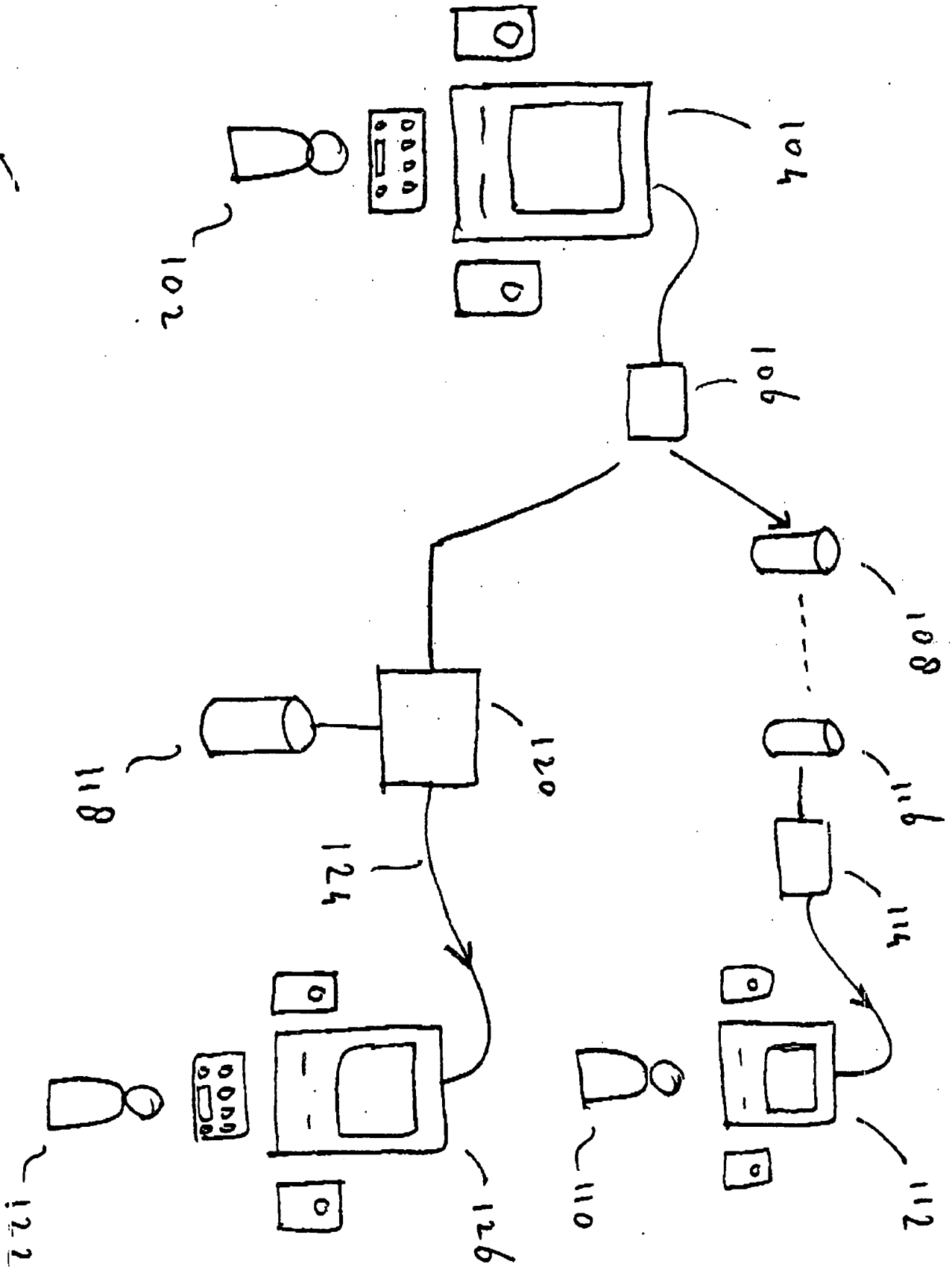
ABSTRACT:

Method for coding a presentation.

A coded presentation comprises a number of sub-presentations, each comprising a number of presentation elements. A presentation element is an elementary part that is to be presented and comprises text, audio, video or an image. A sub-presentation has a timing interface and/or a location interface that provides respectively a time reference and frame of reference for the presentation elements in that sub-presentation.

Figure 3

Fig 1



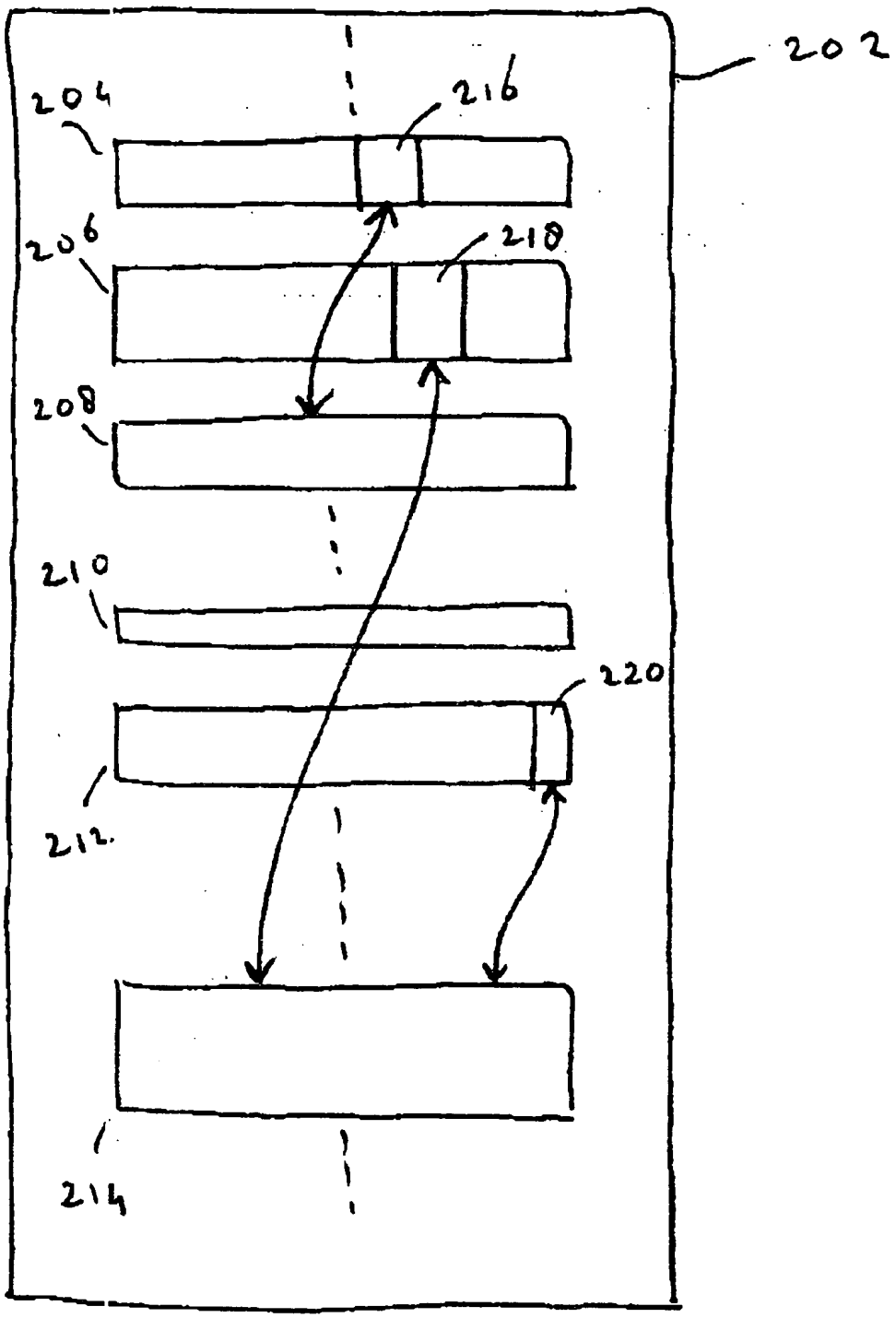


Fig 2

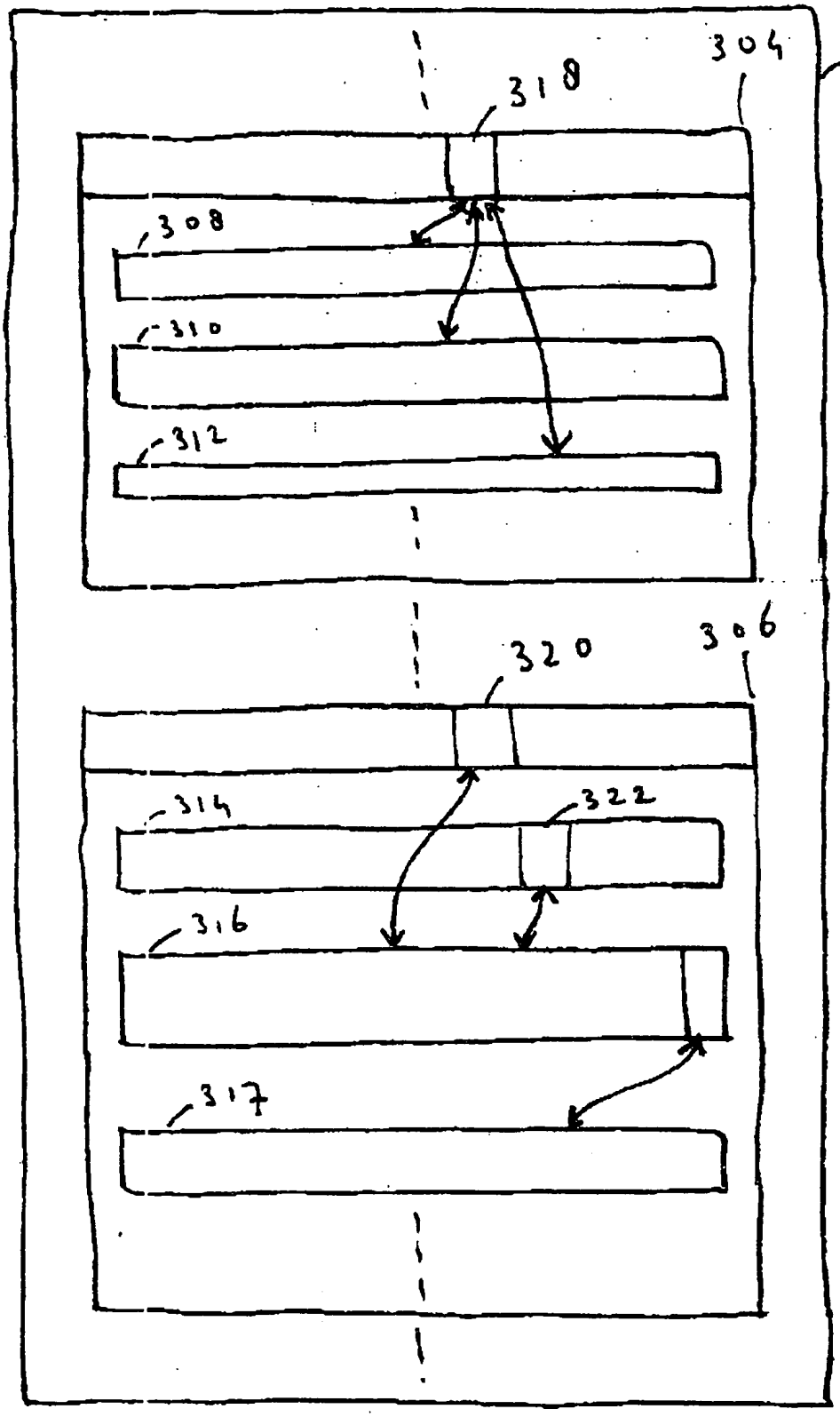
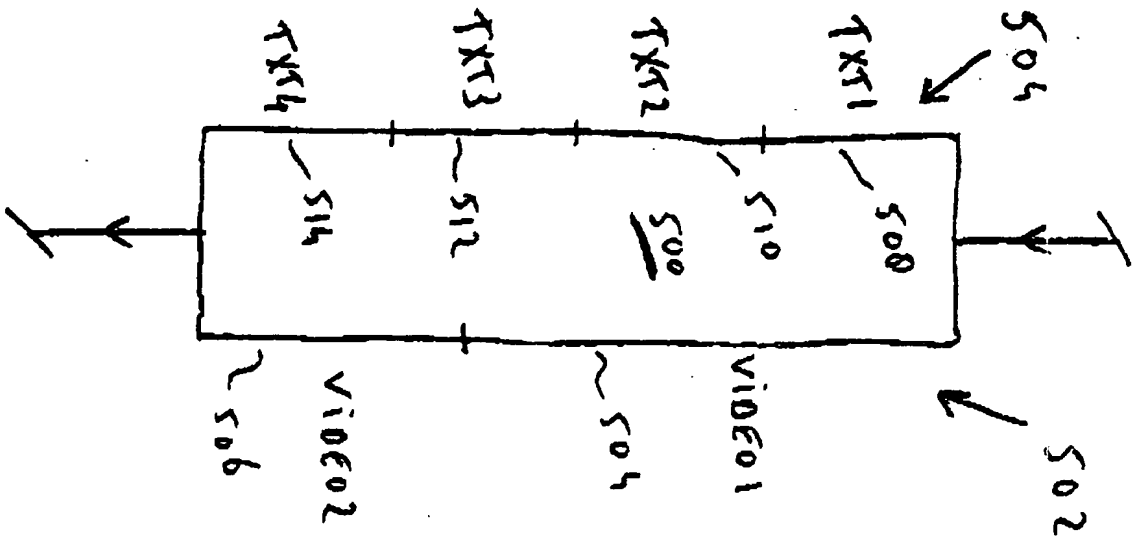


Fig 3

fig 4

fig 6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TXT1
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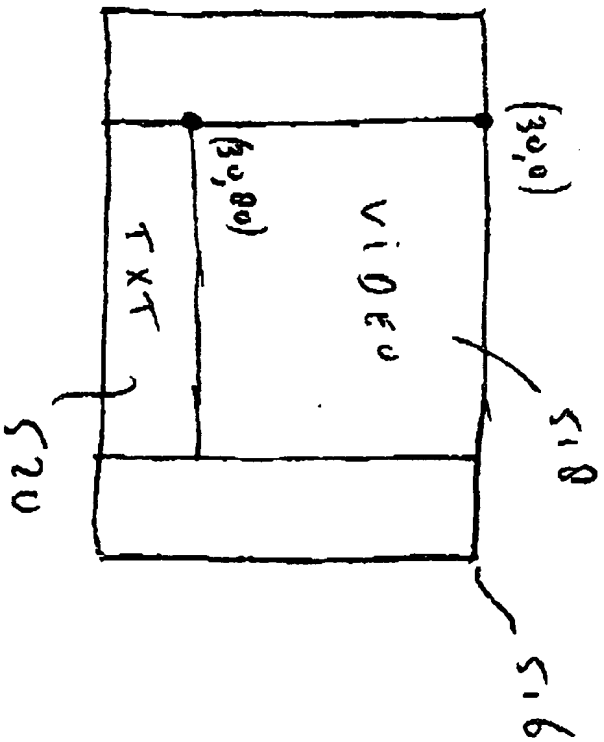
512
500
510
508
VIDEO2
VIDEO1
506
502

Fig 5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VIDEO
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518
516

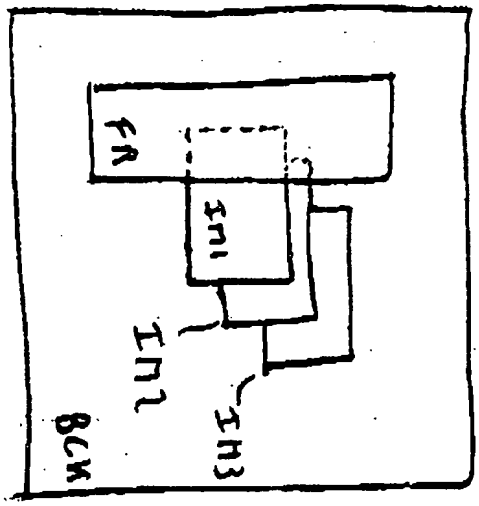

Fig 7

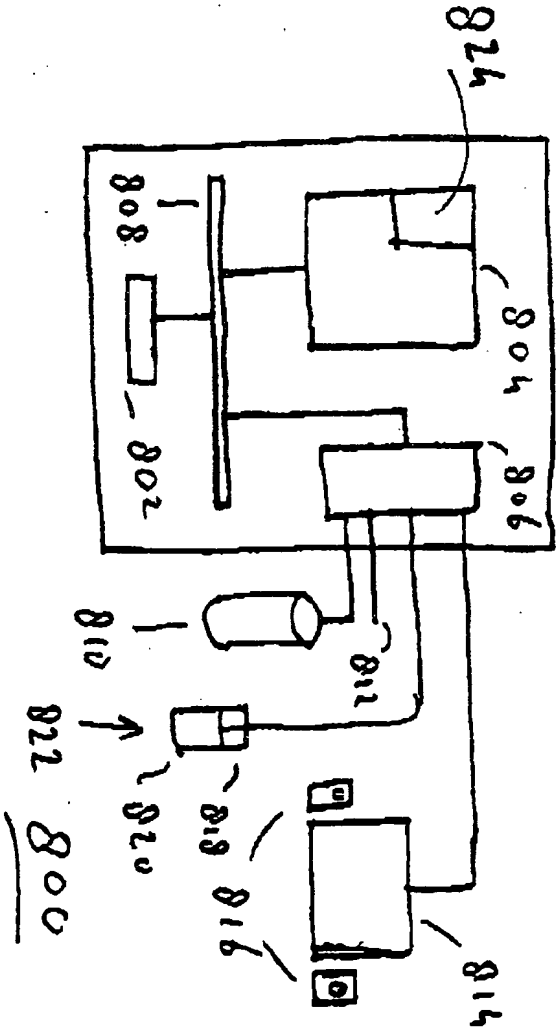

Fig 8

800